CHAPTER 6

SUBGRADE, BASE, FORMS, AND STRING LINES

6-1. General. The setting and protection of forms and string lines and the final preparation of the subgrade, base course, or filter course require close attention to all details to assure that the pavement will have the required thickness and the surface will be at the required grade.

6-2. Subgrade definition. For concrete paving work, the term "subgrade" generally has been used to indicate material directly underneath the concrete pavement regardless of type. However, in some instances, subgrade has been interpreted to indicate only natural earth material and not other materials used as a base or a filter course. In order to avoid a misunderstanding, project plans and specifications in all instances will indicate the specific type of material required, such as subgrade, subbase, base course, or filter course. The lime, cement, or asphalt-stabilized material immediately under the pavement will be considered as the base course.

6-3. Form materials. Wood forms generally are unsatisfactory for paving work, and their use will be discouraged except for such miscellaneous areas as bulkheads and curved fillets. To avoid the excessive cost of pavement construction for small jobs, wood forms may be allowed for pavements less than 8 inches thick in noncritical areas. These would include open storage areas, helicopter parking pads, and vehicle parking. Steel forms are needed for spreading and finishing equipment.

6-4. Placement of forms and string lines. Forms and string lines should be installed well in advance of concrete paving operations so that the required checks and necessary corrections can be made without stopping or hindering concrete placement. The same reasoning applies to the final preparation of the underlying material, which should not be less than 1 full day's operation of the paving equipment ahead of paving.

6-5. String line. The string line should be of high-strength cord or wire. The choice will depend on the type of automatically controlled fine grader or slip-form paver used. Certain manufacturers recommend that high tensile-strength wire be stretched tautly between supports. Other manufacturers recommend a large diameter cord and do not require the tautness that is recommended for wire. The use of wire requires firmly anchored supports. As a result, wire is less likely to be disturbed than is cord whose supports do not have to be so firmly anchored. Wire is difficult to see, and flagging should be attached between the supports to reduce the chance that it will be disturbed during construction. Cord does not require supports to be as firmly anchored as for wire, and as a result, cord is easier to install and

maintain. However, the chance of sagging between the supports is greater. Cord is easy to see, and as a result, the chances of it getting out of alinement are less than for wire. However, cord is more easily disturbed than wire and should be checked more frequently.

6-6. Removal of forms. Pavement forms generally may be removed 12 hours after the concrete is placed. A longer period will be necessary when the strength gain of the concrete is retarded because of delayed or inadequate protection during cold weather. In some instances, it will be desirable to permit earlier removal of forms so that the transverse joints may be sawed completely through to the edge of the slab without leaving a small fillet of concrete adjacent to the form.